

CLAIMS:

1. Driver assembly (10) for driving a gas discharge lamp (L), comprising a plurality of at least two lamp drivers (1A, 1B, 1C) having their respective output terminals coupled in parallel, each individual driver (1A, 1B, 1C) being designed for generating a commutating DC-current at its respective output terminal, the assembly (10) comprising
5 synchronisation means for synchronising the output currents of the individual drivers (1A, 1B, 1C).
2. Driver assembly according to claim 1, wherein each individual driver (1A, 1B, 1C) comprises switching means comprising:
10 - two controllable switches (51, 52) connected in series between a high voltage supply line (V_H) and a low voltage supply line (V_L), a node between said switches coupled to the said driver output terminal;
- a switch driver (54) having outputs (54b, 54c) coupled to respective control terminals of the controllable switches (51, 52);
15 - a timing controller (53) having an output (53b) for generating a timing control signal (S_C) coupled to a timing input (54a) of the corresponding switch driver (54);
wherein said synchronisation means are adapted for synchronising the timing control signals (S_C) of the individual timing controllers (53).
- 20 3. Driver assembly according to claim 2, wherein said synchronisation means comprise a clock signal generator (56) having an output (56a) for generating a clock signal coupled to inputs (53a₁, 53a₂, 53a₃) of all timing controllers (53₁, 53₂, 53₃).
4. Driver assembly according to claim 2, wherein the output (53b₁) of one timing
25 controller (53₁) is coupled to inputs (53a₁, 53a₂, 53a₃) of all other timing controllers (53₂, 53₃).

5. Driver assembly according to claim 1, wherein each individual driver (1A, 1B, 1C) comprises switching means comprising:
- two controllable switches (51, 52) connected in series between a high voltage supply line (V_H) and a low voltage supply line (V_L), a node between said switches coupled to the said driver output terminal;
 - a switch driver (54) having outputs (54b, 54c) coupled to respective control terminals of the controllable switches (51, 52);
- the assembly (10) further comprising a common timing controller (57) having an output (57b) for generating a timing control signal (S_C) coupled to timing inputs (54a₁, 54a₂, 54a₃) of all switch drivers (54₁, 54₂, 54₃).
6. Driver assembly (10) for driving a gas discharge lamp (L), comprising a plurality of at least two lamp drivers (1A, 1B, 1C) having their respective output terminals coupled in parallel, each individual driver (1A, 1B, 1C) being designed for generating a commutating DC-current at its respective output terminal, the assembly (10) comprising a common ignitor (41).
7. Driver assembly (10) for driving a gas discharge lamp (L), comprising a plurality of at least two lamp drivers (1A, 1B, 1C) having their respective output terminals coupled in parallel, each individual driver (1A, 1B, 1C) being designed for generating a commutating DC-current at its respective output terminal, each individual driver (1A, 1B, 1C) comprising individual ignitor means;
- wherein only one of said individual ignitor means is actually coupled to the output terminal of the corresponding individual driver (1A, 1B, 1C).
8. Driver assembly (10) for driving a gas discharge lamp (L), comprising a plurality of at least two lamp drivers (1A, 1B, 1C) having their respective output terminals coupled in parallel, each individual driver (1A, 1B, 1C) being designed for generating a commutating DC-current at its respective output terminal, each individual driver (1A, 1B, 1C) comprising individual ignitor means;
- the assembly (10) comprising synchronisation means for synchronising the operation of the individual ignitor means.

9. Driver assembly (10) for driving a gas discharge lamp (L), comprising a plurality of at least two lamp drivers (1A, 1B, 1C) having their respective output terminals coupled in parallel, each individual driver (1A, 1B, 1C) being designed for generating a commutating DC-current at its respective output terminal, each individual driver (1A, 1B, 1C) comprising individual ignitor means;
5 wherein the individual ignitor means are connected in parallel.
10. Driver assembly (10) for driving a gas discharge lamp (L), comprising a plurality of at least two lamp drivers (1A, 1B, 1C) having their respective output terminals
10 coupled in parallel, each individual driver (1A, 1B, 1C) being designed for generating a commutating DC-current at its respective output terminal, the individual drivers (1A, 1B, 1C) being adapted to each other such as to mutually provide substantially the same amount of power.
- 15 11. Driver assembly (10) for driving a gas discharge lamp (L), comprising a plurality of at least two lamp drivers (1A, 1B, 1C) having their respective output terminals coupled in parallel, each individual driver (1A, 1B, 1C) being designed for generating a commutating DC-current at its respective output terminal;
wherein each individual driver (1A, 1B, 1C) comprises at least one sensor (61) for
20 monitoring at least one operational parameter of the corresponding driver (1A, 1B, 1C);
wherein the assembly further comprises safety control circuitry adapted for switching off the entire assembly if at least one of said sensors detects an anomaly.
12. Driver assembly according to claim 11, further comprising a main safety
25 controller (70) having inputs (70a₁, 70a₂, 70a₃) coupled to outputs of respective sensors (61₁, 61₂, 61₃), and having an output (70b) for generating an overall switch-off signal (S_{OFF}).
13. Driver assembly according to claim 12, wherein each individual driver (1A, 1B, 1C) comprises switching means comprising:
30 - two controllable switches (51, 52) connected in series between a high voltage supply line (V_H) and a low voltage supply line (V_L), a node between said switches coupled to the said driver output terminal;
- a switch driver (54) having outputs (54b, 54c) coupled to respective control terminals of

the controllable switches (51, 52), and further having a safety control input (54d);
 wherein the output (70b) of the main safety controller (70) is coupled to safety control inputs
 (54d₁, 54d₃, 54d₃) of all individual switch drivers (54₁, 54₃, 54₃).

- 5 14. Driver assembly according to claim 12, wherein each individual driver (1A, 1B, 1C) comprises switching means comprising:
- two controllable switches (51, 52) connected in series between a high voltage supply line (V_H) and a low voltage supply line (V_L), a node between said switches coupled to the said driver output terminal;
 - 10 - a switch driver (54) having outputs (54b, 54c) coupled to respective control terminals of the controllable switches (51, 52), and further having a safety control input (54d);
 each individual driver (1A, 1B, 1C) further comprising an individual safety controller (62₁, 62₂, 62₃) having an output (62b₁, 62b₂, 62b₃) coupled to a safety control input (54d₁, 54d₃, 54d₃) of the corresponding switch driver (54₁, 54₃, 54₃);
 - 15 wherein the output (70b) of the main safety controller (70) is coupled to inputs (62a₁, 62a₂, 62a₃) of all individual safety controllers (62₁, 62₂, 62₃).

15. Driver assembly according to claim 11;
 wherein each individual driver (1A, 1B, 1C) further comprises switching means comprising:
- 20 - two controllable switches (51, 52) connected in series between a high voltage supply line (V_H) and a low voltage supply line (V_L), a node between said switches coupled to the said driver output terminal;
 - a switch driver (54) having outputs (54b, 54c) coupled to respective control terminals of the controllable switches (51, 52), and further having a safety control input (54d);
 - 25 each individual driver (1A, 1B, 1C) further comprising an individual safety controller (62₁, 62₂, 62₃) having an input (62a₁, 62a₂, 62a₃) coupled to outputs of respective sensors (61₁, 61₂, 61₃);
- the assembly (10) further comprising a main safety controller (70) having inputs (70a₁, 70a₂, 70a₃) coupled to outputs (62b₁, 62b₂, 62b₃) of respective individual safety controllers (62₁, 62₂, 62₃), and having an output (70b) for generating an overall switch-off signal (S_{OFF}).
- 30

16. Driver assembly according to claim 15, wherein the output (70b) of the main safety controller (70) is coupled to safety control inputs (54d₁, 54d₂, 54d₃) of all individual switch drivers (54₁, 54₂, 54₃).
- 5 17. Driver assembly according to claim 15, wherein the output (70b) of the main safety controller (70) is coupled to inputs (62a₁, 62a₂, 62a₃) of all individual safety controllers (62₁, 62₂, 62₃).
18. Driver assembly according to claim 11, wherein each individual driver (1A,
10 1B, 1C) comprises switching means comprising:
- two controllable switches (51, 52) connected in series between a high voltage supply line (V_H) and a low voltage supply line (V_L), a node between said switches coupled to the said driver output terminal;
- a switch driver (54) having outputs (54b, 54c) coupled to respective control terminals of
15 the controllable switches (51, 52), and further having a safety control input (54d);
each individual driver (1A, 1B, 1C) further comprising an individual safety controller (62₁, 62₂, 62₃) having an output (62b₁, 62b₂, 62b₃) coupled to the safety control input (54d₁, 54d₂, 54d₃) of the corresponding switch driver (54₁, 54₂, 54₃) and having an input (62a₁, 62a₂, 62a₃) coupled to the outputs of all sensors (61₁, 61₂, 61₃).
- 20 19. Driver assembly according to claim 11, wherein each individual driver (1A, 1B, 1C) comprises switching means comprising:
- two controllable switches (51, 52) connected in series between a high voltage supply line (V_H) and a low voltage supply line (V_L), a node between said switches coupled to the said
25 driver output terminal;
- a switch driver (54) having outputs (54b, 54c) coupled to respective control terminals of the controllable switches (51, 52), and further having a safety control input (54d);
each individual driver (1A, 1B, 1C) further comprising an individual safety controller (62₁, 62₂, 62₃) having an output (62b₁, 62b₂, 62b₃) coupled to the safety control input (54d₁, 54d₂,
30 54d₃) of the corresponding switch driver (54₁, 54₂, 54₃);
each individual driver (1A, 1B, 1C) further comprising an OR-gate (64₁, 64₂, 64₃) having an

output coupled to the input (62a₁, 62a₂, 62a₃) of the corresponding individual safety controller (62₁, 62₂, 62₃), having an input coupled to the output of the corresponding sensor (61₁, 61₂, 61₃) and having inputs coupled to the outputs of all other individual safety controllers (62₂, 62₃; 62₁, 62₃; 62₁, 62₂).

5

20. Driver assembly according to claim 1, each individual driver (1A, 1B, 1C) having power supply terminals (11a, 11b; 12a, 12b; 13a, 13b) for receiving AC mains power; wherein all individual drivers (1A, 1B, 1C) have their power supply terminals (11a, 11b; 12a, 12b; 13a, 13b) connected in parallel for connection to one common AC mains power.

10

21. Driver assembly according to claim 1, each individual driver (1A, 1B, 1C) having power supply terminals (11a, 11b; 12a, 12b; 13a, 13b) for receiving AC mains power; wherein the individual drivers (1A, 1B, 1C) are fed from a three-phase mains in a star configuration or a triangle configuration.

15

22. Driver assembly according to claim 21, wherein the number of individual driver (1A, 1B, 1C) equals 3·N, N being an integer; wherein always N individual drivers (1A, 1B, 1C) have their power supply terminals (11a, 11b; 12a, 12b; 13a, 13b) connected in parallel for connection to one common phase of said three-phase mains power.

20

23. Driver assembly according to any of the previous claims, wherein each individual driver comprises a preconditioner stage and a half-bridge commutating forward stage, or comprises a preconditioner stage and a full-bridge commutating forward stage, or
25 comprises a preconditioner stage and a down-converter stage and a half-bridge commutating forward stage, or comprises a preconditioner stage and a down-converter stage and a full-bridge commutating forward stage.